I most respectfully must repeat the observations made by Cindy Sage and Dr. David O. Carpenter in their recommendations to the FCC. They are recognized experts in the field of RF having written the BioInitiative Report and its update of 2012.

The new FCC public exposure limits must take into account the variable conductivity and permittivity of tissues of various ages and developmental stages and aging of humans, and the exquisite sensitivity of the human reproductive cells.

1) SUPPORT DEVELOPMENT OF NEW, BIOLOGICALLY-BASED PUBLIC SAFETY
LIMITS BY A QUALIFIED AGENCY OR PROFESIONAL ORGANIZATION:

The FCC?S thermal-based public safety MPEs and the SAR approach are useful to prevent tissue heating and damage; but not useful to protect the public against chronic exposures (as opposed to acute exposures) biologically active non-thermal, low-intensity NIER.

2) RECOGNIZE THE WHO IARC CLASSIFICATION OF RFR:

The WHO IARC classified RF radiation as a Group 2B Possible Human Carcinogen; it joins the IARC classification of ELF-EMF (Extremely Low Frequency Electromagnetic Fields) as a Group 2B Possible Human Carcinogen, which the FCC has also ignored. The evidence for carcinogenicity for RFR was primarily from cell phone/brain tumor studies but IARC applies this classification to all RFR exposures.

3) ADOPT SPECIFIC LANGUAGE ENDORSING THE PRECAUTIONARY PRINCIPLE:

The Commission should address and incorporate appropriate precautionary, public-health based measures to take into account the recent World Health Organization International Agency for Research on Cancer (IARC) classification of RFR as a Possible Human Carcinogen before subjecting widespread national populations to a preventable toxic exposure.

4) DEFINE BIOLOGICAL EFFECT AS HARMFUL INTERFERENCE WITH BIOLOGICAL ORGANISMS

A definition of biological effects should key to such effects that can reasonably be presumed to result in adverse health effects from exposure to RFR including but not limited to DNA damage; immune, blood-brain barrier, and calcium channel disruption; disturbed circadian rhythms; hormone dysregulation; degraded cognition and sleep; disrupted autonomic regulation; desynchronization of neural activity and other biological consequences of acute or chronic exposure

to low-intensity NIER as documented in the BioInitiative 2007 and 2012 Reports.

5) RECLASSIFICATION OF THE PINNA SHOULD BE DEFERRED:

A reclassification of the pinna should be delayed by the FCC in all open dockets pertaining to completion of the FCC?s review of RFR health effects and proposed FCC compliance testing rule changes. New studies show adverse effects without relaxing this limit. (1,2,3,4). Lin. (5) gives an answer to the FCC?s question asking on page 79 ? We request comment on the significance, if any, of the differences between these standards. For example, we request comment on whether using an averaging mass of 10 grams over a contiguous layer of tissue would yield a significantly different SAR value than that averaged over a 1-gram cube and whether that difference would be consistently higher or lower, particularly with enough consistency to be able to establish a definable relationship between the measurement methods?. See footnote to reference (5)

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6) NEPA ASSESSMENT FOR FINAL RULES ? APPENDIX A AND B

The Commission should require a NEPA assessment for Final Rules (App. A) and Proposed Rules (App. B). Proposed Rules in Appendix B, in particular, have the potential to adversely affect human health and environmental resources.

7) COMPLIANCE TESTING REQUIREMENTS

a) Medical and Metal Implants: Metal detectors in the 9 kHz range are not covered by current FCC rules and should be addressed with respect to the public with disabilities (medical and metal implants). People with deep brain stimulators for Parkinson?s disease are unable to pass through metal detectors because evidence exists that such exposures can shut down the electrodes in these devices, and such exposures are now preventing people with deep brain stimulators from normal activities (shopping, air travel, hospitals and health care facilities, attendance at public meetings and events, etc).

b) Distance Exemptions: More realistic provisions must be developed regarding distancing from RFR transmitters (wireless devices, wireless access points and routers, baby monitors, wireless utility meters, etc) for infants and children who cannot reasonably be expected to observe FCC rules for 20 cm or 40 cm separation. The basis for exemptions from routine evaluations (Appendix C ? fixed, mobile or portable RF sources) assumes conservative derivations or worst-case predictions leading to ?minimal likelihood for the exposure limits for the general public to be exceeded? based on faulty logic about what can be expected with regard to the general public knowing or being able to avoid breaching an arbitrary 20 cm or 40 cm distances.

c) Compliance Testing: Realistic assumptions about operation of wireless utility meter devices (?smart meters?) should be mandatory in FCC testing and issuance of Grants of Authorization. FCC testing labs ignore the obvious two-antenna or three-antenna design of wireless utility meters, yet issue ?Conditions? for compliance that specify ?this compliance test is issued with the condition that the antenna may not operate in conjunction with other antennas?. The FCC cannot reasonably issue Grants of Authorization based on lab testing that ignores typical construction of the device, and how in common practice it is installed and operated.

d) Cumulative Effects: Cumulative effects of RFR exposures from multiple wireless devices and environmental exposures are not sufficiently addressed, measured or tested under current or proposed FCC rules.The 2008 NAS Report on Research Needs for Wireless Device summarizes deficiencies for wireless effects on children, adolescents and pregnant women; wireless personal computers and base station antennas; multiple element base station antennas under highest radiated power conditions; hand-held cell phone compliance testing; and better dosimetric absorbed power calculations using realistic anatomic models for both men, women and children of different height and ages. Realistic assessments of cumulative RFR exposures need to be addressed, taking into account the high variability in environmental situations; and safety buffers below ?effects levels? need to be built into new FCC public safety limits.

e) 100% Duty Cycle : FCC OET 65 should make clear that a 100% duty cycle will continue to be required in calculations of power density ?where the public cannot be excluded?.

f) Time-Averaging vs Pulsed RFR: New public exposure limits for pulsed RFR are needed, rather than specifying compliance limits based on time-averaged fields. Many new wireless devices and exposures create pulsed RFR for users; such exposures are linked to biological disruption effects and adverse health impacts. Time-averaging is biologically inappropriate where such measurements effectively camouflage exposures by mathematical dilution. Positive assertions of safety of pulsed RFR exposures that are characterized only by time-averaging have been shown to be unsupportable .

8. Basis for Biologically-based Public Exposure Limits: Recommendations for new, biologically-based public exposure standards should not be derived from existing FCC/IEEE C95.1 thermal standards, which have other useful purposes but which are obsolete with respect to low-intensity, chronic exposure to new wireless technologies.